

NASA TECH BRIEF

John F. Kennedy Space Center



NASA Tech Briefs announce new technology derived from the U.S. space program. They are issued to encourage commercial application. Tech Briefs are available on a subscription basis from the National Technical Information Service, Springfield, Virginia 22151. Requests for individual copies or questions relating to the Tech Brief program may be directed to the Technology Utilization Office, NASA, Code KT, Washington, D.C. 20546.

Risk Management Technique for Liquefied Natural Gas Facilities

Throughout the country, liquefied natural gas facilities supply fuel to private houses and industry. Although extensive safety measures are incorporated in the design and operation of every gas facility, there is a continuing effort to further improve safety by identifying and analyzing all potential hazards.

A new document was published entitled "Risk Management Technique for Design and Operation of Liquefied Natural Gas Facilities and Equipment." The primary tools used are checklists compiled from many legal requirements and from other safety documents. The lists apply to five phases: the planning, design, construction, startup and debugging, and operation of a liquefied natural gas facility. All the safety considerations covered are made to meet the present standards.

The general approach used in the checklists involves:

- a. The collection of pertinent data based on current safety regulations.
- b. The identification of possible safety hazards based on the collected data.
- c. Performances of risk analysis and problem resolution.
- d. Accountability for hazards using tracing charts, reports, and assessments.
- e. Using the above results for project reviews.

Each phase from planning to operation is covered thoroughly step by step. When all of the hazards are identified and assessed, the designers and the operators of a natural gas facility are prepared to take appropriate measures to obtain optimum safety.

An important feature of the risk management system is that it provides an effective communications link between a safety regulating agency and a gas facility operator. Quicker combined decisions can be made concerning the safety requirements. One section in the document is devoted to preliminary automatic data-processing requirements that will help to speed

up the decision processes. This document also includes a proposed liquefied-natural-gas-facility regulation representing the formalization of the requirements of a large metropolis.

The general approach described in the document is applicable to other hazardous materials as well. It can be used to assess safety hazards in the manufacture, storage, and transport of flammable or explosive chemicals and radioactive materials. Similar methods can be used to handle the risks of pollution.

Notes:

1. The following documentation may be obtained from:

National Technical Information Service
Springfield, Virginia 22151
Single document price \$7.50
(or microfiche \$2.25)
Reference: NASA CR-139183 (N75-19823/LK), Risk Management Technique for Design and Operation of Liquefied Natural Gas Facilities and Equipment

2. Technical questions may be directed to:
Technology Utilization Officer
Kennedy Space Center
Code AD-PAT
Kennedy Space Center, Florida 32899
Reference: B75-10193

Source: Otto H. Fedor
Kennedy Space Center and
William N. Parsons of
The Boeing Co.
(KSC-11005)

Categories: 04 (Materials)
06 (Mechanics)
03 (Physical Sciences)
05 (Life Sciences)